REMARKS

In response to the above-identified Office Action, Applicants amend the specification and seek reconsideration of the application. In this response, Applicants amend Claims 1-4. Applicants do not cancel or add any claims. Accordingly, Claims 1-11 are pending.

Applicants note that the claim amendments are not being made to overcome any rejection or prior art. Although it is believed that the claims as filed are patentable, Applicants make the non-narrowing amendments merely to eliminate non-preferred claim language and not for any reason related to patentability.

I. Specification

The Examiner objects to the disclosure for several informalities. As indicated above, Applicants amend the specification in accordance with the Examiner's suggestions with one exception. Namely, the Examiner requests that Applicants rewrite the sentence starting on page 1, line 25, and ending on page 2, line 3, because the sentence is unclear. In response, Applicants respectfully submit that the sentence appears to be clear since the acknowledge sent to the packet source may also indicate that, for example, the destination node is busy or an error occurred. However, Applicants invite the Examiner to suggest a clarifying amendment if the objection is maintained. Accordingly, Applicants respectfully request approval of the specification as amended.

II. Claims Rejected Under 35 U.S.C. § 102(b)

The Examiner rejects Claims 1-11 under 35 U.S.C. 102(b) as being anticipated by the IEEE 1394 Standard for a High Performance Serial Bus (hereinafter "Reference 1"). Applicants respectfully traverse this rejection. Independent Claims 1, 4, 5, and 9 will each be addressed in turn.

In order to anticipate a claim, the relied upon reference must disclose every limitation of the claim. Among other limitations, independent Claim 1 recites receiving a NAK <u>while the primary</u>

packet is being transmitted; and aborting the transmission without sending all of the primary packet (emphasis added).

In making the rejection, the Examiner relies on Reference 1 to anticipate the invention of Claim 1. Although the Examiner cites many portions of Reference 1, the cited portions fail to teach or suggest all of the limitations of Claim 1. Specifically, the cited text of Reference 1 fails to disclose aborting the transmission without sending all of the primary packet. For instance, the Examiner references Transition OSR1:OSR1 on page 190 of Reference 1 to show that, under certain circumstances, the transaction layer chooses not to requeue the pending retry (which the Examiner suggests is analogous to aborting the transmission without sending all of the primary packet). However, the decision not to requeue the pending retry only occurs after the transaction layer receives a link data confirmation (i.e. an acknowledge of some sort) in response to the entire primary packet being sent. Thus, the transmission in Reference 1 is not aborted without sending all of the primary packet. Rather, the entire transmission is just not resent, which is a far cry from aborting the transmission without sending all of the primary packet.

The Examiner also directs attention to Transition ODR2:ODR0b on page 197 of Reference 1 to show aborting without sending all of the primary packet. However, the cited text also fails to teach or suggest aborting the transmission as used in Claim 1. Specifically, the transaction layer abandons any further attempts to deliver the entire packet when the retry time has been exceeded. Again, this falls short of anticipating Claim 1 since abandoning efforts to deliver an entire packet does not coincide with aborting a transmission without sending all of the primary packet.

In order to buttress Reference 1, the Examiner looks to Applicants' specification for a definition of aborting. The Examiner cites page 7, lines 5-10 of Applicants' disclosure as evidence of the term "aborting" to simply mean that the packet must be sent later. However, this is an overly narrow construction of the term "aborting". Applicants respectfully submit that a full explanation of aborting can be found in the specification on page 6, line 25-page 7, line 10. In particular, the cited text gives an example of one embodiment of the invention in which a source node begins transmission of a packet to a destination node. During receipt of the packet, the

destination node realizes it cannot accept the packet (e.g., perhaps the packet is too big). In response, the destination node sends a NAK to the source node while the packet is being transmitted. Upon receipt of the NAK during transmission (the limitation recited prior to "aborting" in Claim 1 which is also neither taught nor suggested by Reference 1), the source node aborts transmission of the remainder of the packet (i.e. aborts the transmission <u>without sending all of the primary packet</u>). It is the abortion of the transmission which yields one benefit of the invention of Claim 1. Specifically, this allows the bus to be used for other non-futile transmissions once it is determined that sending the remainder of the packet currently being transmitted would be a waste of bus resources since the destination node cannot accept the remainder of the packet.

Therefore, Reference 1 fails to teach or suggest all of the limitations of Claim 1. Accordingly, Applicants respectfully request that the rejection of Claim 1 be withdrawn. Claims 2 and 3 depend from Claim 1 and are not anticipated at least for the same reasons.

Independent Claim 4 recites, among other limitations, identifying, <u>while receiving the primary packet</u>, that the node cannot successfully accept the primary packet; and sending a NAK to the originator of the primary packet <u>concurrently with receiving the primary packet</u> (emphasis added). These limitations of Claim 4 are neither taught nor suggested by Reference 1. In particular, the cited portions of Reference 1 do not disclose (1) identifying that a node cannot accept the packet <u>while the node is receiving the packet</u>, or (2) sending a NAK to the originator of the packet <u>concurrently with receiving the packet</u>. Rather, Reference 1 addresses these functions after the complete transmission of the packet instead of during transmission. Necessarily, the system of Reference 1 can not avoid the completion of futile transmissions in the manner of Claim 4.

Therefore, Reference 1 cannot anticipate Claim 4. Accordingly, Applicants respectfully request that the rejection of Claim 4 be withdrawn.

Among other limitations, independent Claim 5 recites a destination node to generate a NAK if the primary packet cannot be successfully accepted, the NAK generated <u>concurrently with the</u>

receipt of the primary packet (emphasis added). As discussed above, the cited portions of Reference 1 fail to teach or suggest a NAK generated concurrently with the receipt of the primary packet. Likewise, Reference 1 cannot anticipate Claim 5. Accordingly, Applicants respectfully request that the rejection of Claim 5 be withdrawn. Claims 6-8 depend from Claim 5 and are not anticipated at least for the same reasons.

Independent Claim 9 recites, among other limitations, a state machine to generate a NAK in response to an inability to successfully accept a primary packet, the NAK generated concurrently with an ongoing arrival of the primary packet (emphasis added). The same reasoning set forth above for Claim 5 applies to Claim 9. As such, Applicants respectfully request that the rejection of Claim 9 be withdrawn. Claims 10 and 11 depend from Claim 9 and are not anticipated at least for the same reasons.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending (1) are in proper form, (2) are neither obvious nor anticipated by the relied upon art of record, and (3) are in condition for allowance. A Notice of Allowance is earnestly solicited at the earliest possible date.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Dated: April 10, 2001

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CERTIFICATE OF MAILING:

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Box Non-Fee Amendment, Assistant Commissioner for Patents, Washington, D.C. 20231, on April 10, 2001.

Lillian E. Rodriguez 4-10-01

Lillian E. Rodriguez April 10, 2001

VERSION WITH MARKINGS TO SHOW CHANGES MADE IN THE SPECIFICATION

In the paragraph beginning at page 1, line 16, please make the following amendment:

In 1394 systems a plurality of nodes are organized into a tree topology. Additionally, all nodes are initially deemed peer to peer but on bus reset, one node assumes root status while the remaining nodes become branches and leaves of the topology. Both 1394-1995 and 1394a are half-duplex protocols. Thus, data may only flow in one direction at any given time. Typically a primary packet is sent by a source node out all ports. A downstream destination node identifies from a header of the packet that the packet is directed to it. The recipient then receives the packet, and after the entire primary packet is received and the acknowledge gap permits reversing the bus, an acknowledgment (ACK) packet is sent to the source. If the packet is not completely received, the destination node still waits until the transmission and ACK gap are complete before sending an ACK packet to the source indicating that the source should send the packet again later because the destination was busy or an error occurred.

In the paragraph beginning at page 5, line 15, please make the following amendment:

Now referring to **Figure 1,** a physical layer (PHY) 10 has one or more ports which can be connected to a serial bus not shown. For each such port, per port logic 12 is provided as part of [the] PHY 10. The PHY 10 receives a receive signal 32 and transmits a transmit signal 34 through each active port. Per port logic 12 includes a decoder 22 to decode and descramble the incoming receive signal 32. In one embodiment the decoder 22 is an 8B1OB decoder and descrambler, which performs 8-bit 10-bit decoding. This means each 10-bit value coming in as the receive signal 32 is decoded into an 8-bit value. The decoder 22 is coupled to a port state machine 26 which receives a control value decoded by the decoder. Similarly, an encoder 24 is used to encode and scramble the outgoing transmit signal 34. In one embodiment of the invention the encoder performs 8B10B encoding. Analogous to the decode case, each byte of data to be transmitted is

encoded as a 10-bit value. Thus, a number of codings exist that are not used for normal data encoding.

In the paragraph beginning at page 6, line 3, please make the following amendment:

Additionally, the decoder 22 is coupled to an elasticity buffer 18. The elasticity buffer 18 buffers data decoded from the received signal 32 while that data is awaiting transfer to the link and/or repetition out on one or more ports of [the] PHY 10 as the transmit signal 34. The PHY state machine 14 and the arbitration state machine 16 may be combined as a single state machine or may be implemented as two separate state machines. The PHY state machine 14 provides the intelligence for the PHY including generation of any PHY generated packets. The arbitration state machine 16 assesses incoming arbitration information and provides outgoing arbitration requests. If the node is originating a packet on the bus it is the nominal root node. The nominal root node has complete arbitration state information for the topology. Based on this information the arbitration state machine 16 of the nominal root node grants the arbitration request of a highest priority branch. Since nominal root status passes with the grant of the bus, each node should be able to act as arbitrator for the topology. Copending application entitled "Distributed Arbitration on a Full Duplex Bus," Serial No. 09/017,451, describes at least one suitable embodiment of a distributed arbitration system. While much of the subsequent description is devoted to an embodiment in a distributed arbitration topology, the instant invention is also applicable to a non-distributed arbitration topology. For example, even in a system that uses a physical root node to conduct all arbitrations or those systems that continue to employ subaction gaps between each subaction, the invention provides significant bandwidth savings.

In the paragraph beginning at page 6, line 25, please make the following amendment:

Figures 2a and 2b show a sample transaction in one embodiment of the invention. Source node 110 is transmitting a PACKETA 116 to destination node 112. Destination node 112 has determined that it cannot accept PACKETA 116. The inability to accept might be caused by e.g., insufficient available resources. This can often be identified from the packet header, e.g., the

packet header indicates that the packet is of a size that would exceed the destination buffer resources. While PACKETA 116 is still being transmitted to destination node 112, destination node 112 transmits a NAK 114 upstream to source node 110. Upon sending the NAK 114, the destination node asserts its arbitration request 120 on the upstream line. In **Figure 2b**, source node 110 having received NAK 114 previously, aborts PACKETA 116 and issues a grant 122 to the only requesting node, here destination node 112. By aborting the packet that must be resent later, the remaining packet time may be reclaimed and used for useful work.

IN THE CLAIMS

Please amend the claims as follows:

1. (Amended) A method comprising [the steps of]:

transmitting a primary packet from a source node towards a destination node on a full duplex bus;

receiving a NAK while the primary packet is being transmitted; and

aborting the transmission without sending all of the primary packet.

2. (Amended) The method of Claim 1 further comprising [the step of]:

reclaiming bandwidth not used as a result of [the] aborting [step].

3. (Amended) The method of Claim 2 wherein [the] reclaiming [step] comprises [the steps of]:

granting the bus to a highest priority requesting node; and

beginning transmission of a next primary packet from the highest priority requesting node.

4. (Amended) A method comprising [the steps of]:

receiving a primary packet at a destination node;

identifying, during the receiving [step], that the node cannot successfully accept the primary packet; and

sending a NAK to the originator of the primary packet concurrently with the receiving [step].